PATENT
Atty. Docket No.: EMC-97-028

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: Yael Melman

Serial No.:   08/939,772

Filing Date: 9/29/97

Title: COMMUNICATION MECHANISM AND METHOD FOR EASILY
           TRANSFERRING INFORMATION BETWEEN PROCESSES

Art Unit: 2756

Examiner: Cardone, J.

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PRELIMINARY AMENDMENT

Assistant Commissioner of Patents
Washington, DC 20231

Sir or Madam:

   In response to the Advisory Action dated April 21, 2000, please amend the
above-identified patent application as indicated below.

In the Claims:

Please amend the following claims:

1.   A communication mechanism for transferring information between different processes each residing on a processor <u>separately</u> coupled to a data storage system, said communication mechanism <u>being allocated from the data storage system</u> comprising:

at least one interface <u>integrated into each process</u> for enabling the transfer of information from one process to another process where the data is transferred <u>from one process to the other process</u> through the data storage system.

10.   In a network having a plurality of computer system calls, said computer system calls available to a user of a first process <u>residing on a first processor</u> to begin and facilitate communication with a second process <u>residing on a second host processor,</u> through a data storage system, <u>wherein the first and second processors are separately coupled to the data storage system,</u> said computer system calls comprising:

a first call within said process to obtain a communication mechanism from said data storage system, wherein said first call selects a transfer means and a desired type of communication;

a second call within said first process to create a local address for said first process to use with said communication mechanism; and

a third call within said first process to create a connection between said first process and said second process, wherein said third call connects said first process to said second process.

16. A method for transferring information between at least first and second processes residing on processors separately connected to a data storage system via the [a] data storage system, the method comprising the steps of:

creating a communication mechanism;

using said communication mechanism to create a connection between said first process and said second process; and

transferring information from said first process via said data storage system to said second process.

20. A system comprising :

a plurality of host processors, wherein each host processor includes a plurality of processes resident on of each of said host processors;

a local storage area connected to each of said plurality of host processors;

a data storage system separate from said plurality of host processors and connected to each of said plurality of host processors; and

a communication mechanism resident within each one of said plurality of processes, in which information stored in said local storage area is transferred by one of said communication mechanisms via said data storage system to said communication mechanism resident within another one of said plurality of processes.

26. A data storage system for transferring information from a first process to a second process, each of which is running on a selected one of a plurality of host processors that are separately connected to said data storage system, said data storage system comprising:

a plurality of storage devices;

a shared storage region to which both of said first and second processes share

access;

a control block table implemented in at least one of said plurality of storage

devices; and

wherein said control block table allocates a communication mechanism for said

first process which said first process uses to establish a connection to said second

process through said shared memory storage region.

27. A communication mechanism for transferring information between processes

each residing on a processor separately coupled to a data storage system, through the

data storage system, said communication mechanism comprising:

at least one interface located between the processes and a transport protocol in

communication with the data storage system for enabling the transfer of said

information through said data storage system, the interface comprising:

a socket allocated from a shared memory region in the data storage

system by one of the processes, wherein the socket is not bound to any specific

destination address.

Remarks

Claims 1-27 have been rejected under 35 U.S.C. §103(a) as being unpatentable

over by U.S. Patent No. 5,617,537 to Yamada et al. (hereinafter "Yamada") in view of

U.S. Patent No. 5,745,760 to Kawamura et al. (hereinafter "Kawamura"). The

Applicant respectfully traverses the rejections.

The Examiner asserts that Yamada discloses a communications mechanism for transferring information between different processes, but does not disclose a data storage system. It is asserted by the Examiner that the Kawamura reference discloses a data storage system for the transfer of information (col. 2, lines 19-57, col. 4, lines 50-65 and Figs. 1 and 4), and that Yamada and Kawamura are analogous art, communication channeling. Therefore, at the time of the invention it would have been obvious to one having ordinary skill in the art to incorporate the data storage system of Kawamura into the communication channel system of Yamada with the motivation/suggestion for doing so would have been to expand the storage capacity, increasing communication flow

Applicant respectfully submits that claims 1-27 are patentably distinct over the prior art of record, whether alone or in combination, and transverses the rejection.

It may be helpful to provide an overview of Applicant's invention. Applicant's invention addresses the problem of providing an easy way to permit communication and eventually the transfer of information between two different processes or applications residing on a processor or host computer where each host computer is connected to a data storage system. As explained in the specification, a data storage system is not simply memory that can reside in a processor, but is a high performance integrated cache disk array designed for on-line storage. A data storage system contains many storage devices or disks, and is dedicated to the storing of large amounts of data. Typically, ICDAs of this type are also dedicated to not only storing large amounts of data, but providing intelligence and other features to allow the host computers physically connected to the data storage system to both store and retrieve information from the data storage system.

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The processes or applications that reside on the host computer, utilize file transfer processes in order to transfer information to other processes, and such file transfer processes do transfer information to one another usually over a network and sometimes do not use the network, but another apparatus capable of moving the files, such as data storage systems of the type already discussed. Even where a data storage system has been used previously, such use has been difficult because of the lack of a simple means to allow user to utilize the file transfer processes. Applicant has realized the intelligence of the data storage system can be used to create an simpler way of utilizing such file transfers.

Accordingly, claim 1 of Applicant's invention, as amended, claims:

A communication mechanism for transferring information between different processes each residing on a processor separately coupled to a data storage system, said communication mechanism being allocated from the data storage system comprising:

at least one interface integrated into each process for enabling the transfer of information from one process to another process where the data is transferred from one process to the other process through the data storage system.

The communication mechanism that is integrated into each process, comes from the data storage system and includes an interface integral with each process. However, each process does not reside on the data storage system but on the processors connected to the data storage system. Applicant respectfully submits that even if the two references are combined, they do not include all of the features of Applicant's independent claims 1.

First, the apparatus of Kawamura does not disclose, teach or contemplate a data storage system, much less a data storage system that is separate and distinct from the

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processes involved in the communications. Kawamura discloses an apparatus for storing a socket communication log (Col. 3, lines 33-34). Referring to Fig. 4 of the reference, the apparatus is shown. The storage is not a data storage system but log files 17 and 18 which can be stored in a single log file 30 (In Fig. 2D, the apparatus has two log files). This does not constitute a data storage system, but an apparatus for storing a socket communication log. It is stated in the prior art that the apparatus is controlled by a large amount of software (Col. 1, lines 22-23), and that the prior art includes a single system divided into a plurality of processes (Col. 1, lines 31-33). It is a stated object of Kawamura for the apparatus to store the socket communication log without degrading the performance of the apparatus (Col. 2, lines 24-26). However, when this is read all together this does not disclose a data storage system, capable of storing large amounts of data, as described in Applicant's claim 1, but a computer or host computer which includes some local memory for storage.

The Examiner also states that it would have been obvious to insert the message buffers of Yamada into the system of Kuwamura. However, even if the references were combined in the manner suggested by Examiner, each and every feature of claim 1 would not be shown as claim 1 claims:

"......for transferring information between different processes each residing on a processor separately coupled to a data storage system..."

If the Examiner's assertion were carried out, the transfers would occur between processes resident in one single system or computer. The message system of Yamada only contemplates inter-processor transfers, as all of the processes of Yamada are contained in a single multi-processor (17) system, in which the message buffers and

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shared memory are all part of the same system. Inclusion of this type of message system into a system such as the one in Kawamura would not result in Applicant's claimed invention.

Additionally, Kawamura does not contemplate the use of the apparatus itself as a communications channel, as the processes of Kawamura includes a standard communications channel. Referring to Fig. 2 of Kawamura, a stream socket 20, is connected between the processes and in effect is the communications channel. This stream socket, as disclosed in Kawamura and shown in Fig. 2 is a point-to-point communication between the two processes. Therefore, if the messaging system of Yamada were inserted into the apparatus of Kawamura, it would result in a system which provides point-to-point communication between two processes, without a third entity (i.e. data storage) serving as the communications channel.

Lastly, the Examiner asserts that the motivation for combining the references would be to expand the storage capacity, increasing communication flow. The capacity of the data storage system is not particularly relevant to Applicant's invention, except that the data storage system used in Applicant's invention is of the ICDA type.). When the prior art itself provides no apparent reason for one of ordinary skill in the art to make a modification or combine references, the claimed subject matters would not have been obvious, and here the motivation does not exist to have combined the references in the manner suggested. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Fritch*, 972 F.2d 1260, 1266, 12 USPQ2d 1780, 1783-84 (Fed. Cir. 1992) (citing *In re Gordon*, 733 F.2d 900, 902, 221

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Re: Continuation Application filed November 10, 2000 of prior application 08/939,772 filed September 29, 1997.
Applicant: Yael Melman
Title: COMMUNICATION MECHANISM AND METHOD FOR EASILY TRANSFERRING INFORMATION BETWEEN PROCESSES

Pursuant to your request of this date, following is a copy of the Continuation Application, Preliminary Amendment, and date-stamped postcard of our filing dated November 10, 2000.

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Applicant:	Yael Melman	Art Unit:	2756
Serial No.:	08/939,772	Examiner:	J. Cardone
Filing Date:	9/29/97		
Title:	COMMUNICATION MECHANISM AND METHOD FOR EASILY TRANSFERRING INFORMATION BETWEEN PROCESSES		

Susan: Per your request, following is the Preliminary Amendment that was filed on November 10, 2000 along with the Continuation Application. Please contact me if you need anything further.
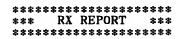
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Serial No.: __08/939,772__   Filed: __9/29/97__   Attorney: __LJF:pm__
Applicant: __Melman__   Docket No.: __EMC-97-028-A__   Date Mailed: __Nov 10, 2000__
Title: __Communication Mechanism and Method for__   ☒ First Class Mail ☐ Express Mail No. _____
The following was/were received in the U.S. Patent & Trademark Office Mail Room on the date stamped hereon:

1. ☐	____ PCT New Application Transmittal _Easily Transferring_	
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2. ☒	Transmittal Form for Application*	
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	____ Provisional Application under 37 CFR 1.53(c)	
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	_X_ Continuation Application under 37 CFR 1.53(b)	
	____ Divisional Application under 37 CFR 1.53(b)	
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	____ Other _____	
3. ☒	*Patent Application Including:	
	____ Pages Specification	
	____ Pages Claims (Claims 1 through ___)	
	____ Pages Abstract	
	_2_ Sheets of Drawings (Fig. 1 through _3_)	
4. ☒	Declaration/Power of Attorney (_2_ pages) (COPY)	
5. ☐	Verified Siml-Small Entity Status	
6. ☐	Executed Power of Attorney	
7. ☐	Priority Document(s) & cover sheet	
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